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10/7Raw Seq
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pp 6-7

RAW SEQUENCE LISTING

DATE: 09/27/2002

PATENT APPLICATION: US/09/155,708B

TIME: 14:23:50

Input Set : A:\MUR-003.ST25.txt

Output Set: N:\CRF4\09272002\I155708B.raw

3 <110> APPLICANT: Farrar, Jane
4 Humphries, Peter
5 Kenna, Paul
7 <120> TITLE OF INVENTION: Genetic Suppression and Replacement
9 <130> FILE REFERENCE: MUR-003
11 <140> CURRENT APPLICATION NUMBER: US 09/155,708B
12 <141> CURRENT FILING DATE: 1999-04-05
14 <150> PRIOR APPLICATION NUMBER: PCT/GB97/00929
15 <151> PRIOR FILING DATE: 1997-04-02
17 <160> NUMBER OF SEQ ID NOS: 28
19 <170> SOFTWARE: PatentIn.version 3.0
21 <210> SEQ ID NO: 1
22 <211> LENGTH: 617
23 <212> TYPE: DNA
24 <213> ORGANISM: mammalian
26 <220> FEATURE:
W--> 27 <221> NAME/KEY: n
28 <222> LOCATION: (1)..(617)
29 <223> OTHER INFORMATION: any
31 <400> SEQUENCE: 1
W--> 32 tcccttntgn tagattgcan nccccataa aanaaggnc cgttaaagg cttatcgaaa 60
W--> 34 ttaatacgac tcactatang gagaccgaag cttagagtca tccagctgga gccctgagt 120
36 gctgagctca ggccttcgca gcattcttgg gtgggagcag ccacgggtca gccacaagg 180
38 ccacagccat gaatggcaca gaaggcccta acttctacgt gcccttctcc aatgcgacgg 240
40 gtgtggtacg cagcccttc gagtaccac agtactacct ggtgagcca tggcagttct 300
42 ccatgctggc cgcctacatg tttctgctga tegtgtggg cttcccatc aacttctca 360
44 cgtctacgt caccgtccag cacaagaagc tgcgcacgcc tctcaactac atcctggctc 420
W--> 46 aacctagccg tggctgaact cttcatggtc ctangtggct tcaccagcac ctctacanct 480
W--> 48 ctctgcatgg atactcgtct tggggccac aggatgcaat tgganggctc tttgcacctg 540
W--> 50 gngggaaatt gcctgtggtc ctngtggtcn ggnaccaac gtactggtng tgtntancc 600
52 agaacaactc cgtccccc
54 <210> SEQ ID NO: 2
55 <211> LENGTH: 639
56 <212> TYPE: DNA
57 <213> ORGANISM: mammalian
59 <220> FEATURE:
W--> 60 <221> NAME/KEY: n
61 <222> LOCATION: (1)..(639)
62 <223> OTHER INFORMATION: any
64 <220> FEATURE:
65 <221> NAME/KEY: misc_feature
66 <223> OTHER INFORMATION: C to G change at position 271
68 <400> SEQUENCE: 2

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W--> 69 ggnnnnttgg gtcgcgcatt naagaactca nggncccgca gcattcttgg gtgggagcag      60
W--> 71 ctacgggtca gccacaaggg ccacagccat gaatggcaca gaangcccta acttctacgt      120
      73 gcccttctcc aatgcgacgg gtgtggtacg cagcccttc gagtaccac agtactacct      180
      75 ggctgagcca tggcagttct ccatgctggc cgcctacatg tttctgctga tcgtgctggg      240
      77 ctcccccatc aacttcctca cgcctacgt gaccgtccag cacaagaagc tgcgcacgcc      300
W--> 79 tctcaactac atctgctca acctanccgt gngtgaactc ttcattgttc taggtggctt      360
W--> 81 caccancaac ctctanacct ctctgcatgg anacttcntc ttccggccca caggatgcaa      420
W--> 83 tttggaaggn ttctttaac acccgggggg ggaaaattgc ctgtggctct tgggtggctcg      480
W--> 85 gncancnaac ggtacttggt gnttttaanc cataaacaat tccgcttcgg gaaaaacatg      540
W--> 87 ccancntggg gtttcttca ctnggttang ggcnggctgc cccacccca atccnggtn      600
W--> 89 gtcaantaat cccaagggn nantgnctt ttaaacaaa      639
      91 <210> SEQ ID NO: 3
      92 <211> LENGTH: 686
      93 <212> TYPE: DNA
      94 <213> ORGANISM: mammalian
      96 <220> FEATURE:
W--> 97 <221> NAME/KEY: n
      98 <222> LOCATION: (1)..(686)
      99 <223> OTHER INFORMATION: any
     101 <220> FEATURE:
     102 <221> NAME/KEY: misc_feature
     103 <223> OTHER INFORMATION: CCC to CTC change at 216-218
     105 <400> SEQUENCE: 3
W--> 106 nnnttagggg cggatgtcna tataagcaga nctctctggg ctaactaana agaaccact      60
      108 ggcttactgg cttatcgaaa ttaatacgac tactatagg gagacccaag cttccggaaa      120
      110 gctgagctc agccacaagg gccacagcca tgaatggcac agaaagccct aacttctacg      180
      112 tgcccttctc caatgcgacg ggtgtggtac gcagcctctt cgagtacca cagtactacc      240
      114 tggtgagcc atggcagttc tcatgctgg ccgcctacat gtttctgctg atcgtgctgg      300
      116 gcttccccat caacttcctc acgctctacg tcaccgtcca gcacaagaag ctgcgcacgc      360
W--> 118 ctctcaacta cactctgctc aaactanccg tggtgaactc cttcatggtc ctangtggct      420
W--> 120 tcaccancac cctctacacc tctctgcatg gatacttcgt cttccgggcc acaggatgca      480
W--> 122 atttgaagg cttcttgca nccctggngc ggaaattgcc tgtngtctcg gtggctctgg      540
W--> 124 ccatcaacng tacttgttgt ntnttaccce tnaacaattc cgtccggga aaacatgcac      600
W--> 126 atgggnttgc ctactnggt ctggggcngg cnccccaccc ccccccggt ggtcanttat      660
W--> 128 cccanggcgn aatgccttn annaaa      686
      130 <210> SEQ ID NO: 4
      131 <211> LENGTH: 787
      132 <212> TYPE: DNA
      133 <213> ORGANISM: mammalian
      135 <220> FEATURE:
W--> 136 <221> NAME/KEY: n
      137 <222> LOCATION: (1)..(787)
      138 <223> OTHER INFORMATION: any
     140 <400> SEQUENCE: 4
W--> 141 cngcncgttg aaatataagc agaccctctg gntaactana ataaccactg cttactggct      60
W--> 143 tatcgaaatt aatacgactc actatangga gaccaagctt ggctggctcg atgagtcctg      120
W--> 145 gaggacgaaa cgtagagtct anagggccct attctatagt gtcacctaaa tgctaganct      180
      147 cgtgatcag cctcgactgt gcctctagt tgccagccat ctgtgtttg cccctcccc      240
W--> 149 gtgccttctc tgancctgga aggtgccact cccactgtcc tttcctaata aatgagnaa      300

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```

W--> 151 ttgcntctca ttgtctgagt agtgtcatcc aatctggggg tgggtggggc agnacacnag 360
W--> 153 gggaagatgg gaaaacatac aggcattgtg gggangccgt ggntctatgn ctengaggcg 420
W--> 155 aaaaaacact ggggnctagg ggtacccac cccctgtacg gccataacnc gnggtttgtg 480
W--> 157 gtaccacta acgtanntgc accctaccg ncttcttct cctcttncca ttcccggttc 540
W--> 159 cctcaccnaa cgggccttng tcatatctng gnccacaaa tanagtagtc ttgccccca 600
W--> 161 aagtcctna tgacctntaa gaccttcann anccccctt ntttnaaana nccnnnnnnn 660
W--> 163 nnnnnnnnc cngnaaaan aacaactaat tttgggaacc cccccnana aaccctttcc 720
W--> 165 ntnttcccc natttaant tnnntnccc cccccccc ccccnnttt tnncccccn 780
W--> 167 nnnnnng
169 <210> SEQ ID NO: 5
170 <211> LENGTH: 665
171 <212> TYPE: DNA
172 <213> ORGANISM: mammalian
174 <220> FEATURE:
W--> 175 <221> NAME/KEY: n
176 <222> LOCATION: (1)..(665)
177 <223> OTHER INFORMATION: any
179 <400> SEQUENCE: 5
W--> 180 nccccgccc ntttnaaana anccnagcct ctggcnaact ananaaccac tgcttactgg 60
W--> 182 cttatcnaaa ttaatacgac tcaactatagg gagacccaag ctttactcga actgatgagt 120
W--> 184 ccgtgaggac gaaaggctgc tctananggc cctattctat antgtcacct aaatgctaga 180
186 gctcgctgat cagcctcgac tgtgccttct aattgccagc catctgttgt ttgccctcc 240
188 ccctgcttct ccttgacct ggaaggtgcc actccactg tcccttcta ataaatgaa 300
W--> 190 gatnttncat cncattgtct gagtaagtgt cattctattc tgggggggtg ggtggggcac 360
W--> 192 gacancaang gggaagattg ggaaaaata ncaggcntgc tggggatncc gtgggctcta 420
W--> 194 tngcttctga agcggaaaaa acaactgggg ctctangggg tatccccccc cccctgtaac 480
W--> 196 gngcattaaa cncgggggtg ttgtggttac cccaacttaa cgctancttg caacgccna 540
W--> 198 acgccccnc ttctcttct ccttctctc nccacttct cgggttccn tcaaccnna 600
W--> 200 tcggggcccc ttaggtccaa ttatgcttcg gcccncnccn aaactaatag gtnnggttctt 660
W--> 202 tngcc
205 <210> SEQ ID NO: 6
206 <211> LENGTH: 624
207 <212> TYPE: DNA
208 <213> ORGANISM: mammalian
210 <220> FEATURE:
W--> 211 <221> NAME/KEY: n
212 <222> LOCATION: (1)..(624)
213 <223> OTHER INFORMATION: any
215 <400> SEQUENCE: 6
W--> 216 nnnncttnc tanngettgg taccganctc ggatccacta gtnaacggcc gccagtgtgc 60
W--> 218 tggaaattcc cagaggnaact ctggggcaga caagatgaga cacccttcc tttctttacc 120
220 taagggcctc caccgatgt cacttgccc cctctgcaag ccaattaggc cccggtggca 180
222 gcagtgggat tagcgtagt atgatctctc gcggatgctg aatcagcctc tggcttaggg 240
224 agagaaggtc actttataag ggtctggggg gggtcagtgc ctggagttgc gctgtgggag 300
W--> 226 ccgtcagtgg ctgagctcgc caagcagcct tgggtctgt ctacgaaaan cccgtggggc 360
W--> 228 agcctcnana accgcagcca tgaacggcac agaaggcccc aatttttatg tgcccttctc 420
W--> 230 caacgtcaca ngcgtggtgc ggaacccct cnancnccg cagtactacc tggcggaacc 480
W--> 232 atggcagttc tccatgctgg cancgtaac gtctgtctca tcgtgctggg ntccccatca 540
W--> 234 actcctcag ctctagttca ccgtaanna naaaaaactg cgcaaccct caactaaatc 600

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236 ctgctcaatt gggcgtgggt gaac 624
238 <210> SEQ ID NO: 7
239 <211> LENGTH: 630
240 <212> TYPE: DNA
241 <213> ORGANISM: mammalian
243 <220> FEATURE:
W--> 244 <221> NAME/KEY: n
245 <222> LOCATION: (1)..(630)
246 <223> OTHER INFORMATION: any
248 <220> FEATURE:
249 <221> NAME/KEY: misc_feature
250 <223> OTHER INFORMATION: TTT to TCT transversion at position 189-191
252 <400> SEQUENCE: 7
W--> 253 nnnntcttcc nctttcgttt gttgnanant cannaaan aggcgncccg gaagggtgtca 60
W--> 255 gtgcctggag ttgcgctgtg ggacccgtca ntggctgagc tcgccaagca gccttgggtct 120
257 /ctgtctacga agagcccggtg gggcagcctc gagagccgca gccatgaacg gcacagaggg 180
W--> 259 ccccaatttc tatgtgccct tctccaacgt cacaggcggtg gtgcggagcc ccttcgancn 240
261 tccgcagtag tacctggcgg aacctaggca gttctccatg ctggcagcgt acatgttcct 300
263 gtcctcgtg ctgggcttcc ccatcaactt cctcacgctc tacgtcaccg tacagcacia 360
W--> 265 gaagctgcgc acacccctc aactacatcc tggctcaact tgggcccgtg ggnttggaaac 420
W--> 267 ctcttcccca ttgggtcctt cccggaangg antncacca ccacccctct aacacatcaa 480
W--> 269 ctcccatggg ctacttcgtt cttttggggc ccncaggtg ttaatctcga agggcttctt 540
W--> 271 tgccacacct tggaagtga atcncctgt ggttccctgg tggctntggc cattaacgct 600
273 actgtggtc ctgcaaccca ataacaattc 630
276 <210> SEQ ID NO: 8
277 <211> LENGTH: 649
278 <212> TYPE: DNA
279 <213> ORGANISM: mammalian
281 <220> FEATURE:
W--> 282 <221> NAME/KEY: n
283 <222> LOCATION: (1)..(649)
284 <223> OTHER INFORMATION: any
286 <400> SEQUENCE: 8
W--> 287 tccccnntt tttgtagcnc tgccaanaaa aaaggccagc tcacaggana antananaac 60
W--> 289 ccaactgctta ctggcttanc naaattaata cgactcacta tagggagacc caagcttggc 120
291 acatctgatg agtcctgtg gacgaaaaaa ttggtctaca gggccctatt ctataatgtc 180
W--> 293 acctaaatgc tanagctcgc tgatcatcct cnaactgtgc ttctacttgc cagccntctn 240
295 ttgtttgcc ctcccccggt ccttccttga ccctggaagg tgccactccc actgtccttt 300
297 cctaataaaa tgaggaaatt gcatcgcat gtctgagtaa gtgtcattct attctggggg 360
W--> 299 gtgggggtgg gcaggacnnc aaagggggaag attggggaat acaatancca agganncctc 420
W--> 301 cccengggta attgcggtt nggctctntc gcttccttaa ggcngaaana aacaactngg 480
W--> 303 gcgctnccgg gtttccccn ccnccctnt tagcngcgca ttantcgccg cgggtgttgt 540
W--> 305 tgttactccc cacctnaacg ctacanttgc cagcgctaa cgccccccct tncntttctt 600
W--> 307 ccttccttcc tcnacttcc cgggtttcc ccnccaancc naaatcngg 649
309 <210> SEQ ID NO: 9
310 <211> LENGTH: 681
311 <212> TYPE: DNA
312 <213> ORGANISM: mammalian
314 <220> FEATURE:

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W--> 315 <221> NAME/KEY: n
      316 <222> LOCATION: (1)..(681)
      317 <223> OTHER INFORMATION: any
      319 <400> SEQUENCE: 9
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      322 ctgcttactg gcttatcgaa attaatacga ctactatag ggagacccaa gcttggtacc      120
W--> 324 gagctcngat ccactagtaa cggccgccag tgtgctggaa ttcttcagcg cccacgacca      180
      326 gtgactatcc cctgctcaag ctgtgattcc gagaccctg ccaccactac tgcattcacg      240
W--> 328 ggggatccca ngctaattggg actcgacatg gggtgcccc acggcanctc cctacanctt      300
W--> 330 gggccanctn cacttttccc aaagncctaa atctccgcct ctcggctcnt taangttnng      360
W--> 332 ggtgggganc tgtgctgtgg gaacaaccc agaananact tgggcagcat ggngctactg      420
W--> 334 aaagtncaatt ttgaacagaa naacgggtcc antttggccc aaggnncnng ntcctaaant      480
W--> 336 ggttctccnt ntttggtngn ntcncnctt tccnctngg aatgttcctg aaaaattnaa      540
W--> 338 cnccaaaaaa gaacaaattg aaaaatantt ctnaaaaccc tttgttncc cccccccna      600
W--> 340 aaagggagg ggnggnncc ttttnttcc cccccgggg ggggaaaatt tnnnnnaanc      660
W--> 342 ccccccccc ctttttttn a      681
      345 <210> SEQ ID NO: 10
      346 <211> LENGTH: 612
      347 <212> TYPE: DNA
      348 <213> ORGANISM: mammalian
      350 <220> FEATURE:
W--> 351 <221> NAME/KEY: n
      352 <222> LOCATION: (1)..(612)
      353 <223> OTHER INFORMATION: any
      355 <400> SEQUENCE: 10
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W--> 358 ccgccagtgt gctggaattc ttcancgcc aggaccagga ctatccctg ctcaagctgt      120
W--> 360 gattccgaga ccctgccac cactactgca ttcacggggg atcccaggct agtgggacnc      180
      362 gacatgggta tccccaggg cagctcccta cagcttggc catctgcact tttccaagg      240
W--> 364 ccctaagtct ccgcctctgg gctcggttan gtntggggtg ggagctgtgc tgtgggaaac      300
W--> 366 aaccgggact acacttggca agcatggcgc tgcgaaaagt caagtttgaa cagaaaaaan      360
W--> 368 gggtaagtt ggccaaggg ctctggctca gggaaactgg gttcccnc nngtttngg      420
W--> 370 tttgntgca tcanctncca aaaaannnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn      480
W--> 372 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn      540
W--> 374 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn      600
W--> 376 nnnnnnnnnn nn      612
      378 <210> SEQ ID NO: 11
      379 <211> LENGTH: 20
      380 <212> TYPE: DNA
      381 <213> ORGANISM: Artificial sequence
      383 <220> FEATURE:
      384 <221> NAME/KEY: misc_feature
      385 <223> OTHER INFORMATION: Forward mutation primer
      387 <400> SEQUENCE: 11
      388 catggcgctg ctgaaagtca      20
      391 <210> SEQ ID NO: 12
      392 <211> LENGTH: 20
      393 <212> TYPE: DNA
      394 <213> ORGANISM: Artificial sequence

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RAW SEQUENCE LISTING ERROR SUMMARY
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Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; N Pos. 7,10,20,21,22,33,38,79,454,478,525,542,563,570,573,589,594
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 Seq#:2; N Pos. 3,4,5,6,21,31,34,104,326,333,366,376,392,398,430,482,485,487
 Seq#:2; N Pos. 503,509,544,546,563,569,574,596,600,606,620,621,623,626,628
 Seq#:3; N Pos. 1,2,3,10,19,31,49,387,414,427,501,508,524,549,561,563,572
 Seq#:3; N Pos. 606,617,628,632,656,665,670,680,682,683
 Seq#:4; N Pos. 2,5,32,39,87,142,178,254,298,305,353,358,395,403,410,414,435
 Seq#:4; N Pos. 469,472,496,497,511,516,527,548,559,569,572,583,609,617,629
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 Seq#:5; N Pos. 1,2,11,15,19,22,25,36,42,44,67,145,147,162,304,307,312,365
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 Seq#:5; N Pos. 640,653,662
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 Seq#:6; N Pos. 568,569,571
 Seq#:7; N Pos. 1,2,3,4,11,25,27,29,33,34,38,40,46,91,238,240,408,413,438
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 Seq#:13; N Pos. 563,585,601
 Seq#:14; N Pos. 2,11,19,371,376,402,449,453,454,464,475,485,486,494,496,497
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Seq#:14; N Pos. 618,622,623,625,626,627,628,631,633,634,635,636,637,638,640
Seq#:14; N Pos. 641,642,644,645,646,647,648,649,650,651,652,654,657,658,664
Seq#:14; N Pos. 665,666,667,669,670,671,672,673,674,675,677,679
Seq#:15; N Pos. 1,2,6,14,25,27,44,50,53,54,97,153,293,311,312,341,368,373
Seq#:15; N Pos. 400,430,433,436,439,446,456,469,474,475,479,480,487,494,496
Seq#:15; N Pos. 501,505,521,522,525,527,532,534,537,545,546,551,552,553,559
Seq#:15; N Pos. 584,586,590,595,604,609,626,630,633,635,637,644,645,646,647
Seq#:15; N Pos. 650,653,657,659,661,666,669,671,673,674,678
Seq#:16; N Pos. 1,4,7,15,25,33,34,41,122,153,251,308,311,346,366,416,459
Seq#:16; N Pos. 497,563,567,600,616,631,641,682,683,685,691,695,698,699,700
Seq#:16; N Pos. 701,702,703,704,705,706,707,708,709,710,711,712,713,714,715
Seq#:16; N Pos. 716,717,718,719,732,748,750,751,755,757,768,773,776,783,787
Seq#:16; N Pos. 792,795,802,803,804,805
Seq#:17; N Pos. 13,54,67,95,140,183,246,266,296,302,343,356,402,435,444,518
Seq#:17; N Pos. 538,541,548,554,560,565,589,590,598,611,613,623,627,628,629
Seq#:17; N Pos. 630,631,632,633,634,635,636,637,641,644,646,653,659,662,664
Seq#:17; N Pos. 667,683,686,688,700,720,741,742,754,758,760,762,763,768,777
Seq#:17; N Pos. 778,779,783,790
Seq#:18; N Pos. 1,7,8,12,15,20,34,35,44,46,74,301,327,361,366,386,459,473
Seq#:18; N Pos. 495,518,590,615,640,642,654,669